CLAIMS

What is claimed is:

1.   A method of eliminating home-in noise of an optical disc drive without a home
limit switch and using a variable step counter, comprising:

resetting the variable step counter, which counts steps of a stepping motor of an optical
pickup, to zero regardless of a position of the optical pickup, when power is applied to the
optical disc drive;

driving a servomechanism at the position of the optical pickup and then reading a sub-
code value of the optical disc to confirm a current position of the optical pickup;

calculating a number of tracks from the current position of the optical pickup to a home
position and converting the number of tracks into a step counter value to obtain a step counter
value of the home position; and

moving the optical pickup to the home position through an access operation,

wherein the step counter value of the home position is an integer varying depending on
the position of the optical pickup when power is applied.

2.   The method of claim 1, wherein the home position is 00:02:00.

3.   The method of claim 1, wherein, when a disc is not loaded into the optical disc
drive, the optical pickup does not move to the home position but stays at the current position
when power is applied to the optical disc drive.

4.   The method of claim 1, further comprising resetting an initial position of the
optical pickup and thereafter accessing one of a 00:03:00 area when a 12 cm disc is a CD and
30000h when the 12 cm disc is a DVD, the 12cm disc is loaded into the optical disc drive, and
the optical pickup is located in a data area of the 12cm disc, in compliance with a speed profile
based on information on a current position of the optical pickup and a table of contents (TOC)
area, and moving the optical pickup a distance toward an inner perimeter of the 12cm disc until
the optical pickup is located in the data area of the 12cm disc in no good (NG) of a focus when
the optical pickup is located around an outer perimeter of the 12cm disc, and then performing an
access operation.

5.   The method of claim 1, further comprising resetting an initial position of the optical pickup and thereafter accessing one of a 00:03:00 area when an 8cm disc is a CD and 30000h when the 8cm disc is a DVD, and the 8cm disc is loaded into the optical disc drive, in compliance with a speed profile based on information on a current position of the optical pickup and a table of contents (TOC) area, determining whether a disc is loaded when the optical pickup is near an outer perimeter of the 8cm disc, after initial application of power, to force the optical pickup to the data area, and performing an accessing operation.

6.   The method of claim 1, further comprising calculating a new home position when the optical pickup accesses the optical disc a threshold number of times by calculating a number of tracks from a current position of the optical pickup to a home position, converting the calculated number of tracks into a converted step counter value, and subtracting a current step counter value from the converted step counter value.

7.   The method of claim 6, wherein the home position is 00:02:00.

8.   The method of claim 5, further measuring a radio frequency ripple peak (RFRP) value to discern the data area from a non-data area when the optical pickup is located beyond the data area.

9.   The method of claim 8, further comprising moving the optical pickup inwardly to minimize shock and noise during home-in of the optical pickup when there is no data.

10.   A method of eliminating home-in noise of an optical disc drive without a home limit switch and using a variable step counter, comprising:
    resetting the variable step counter, which counts steps of a stepping motor of an optical pickup, to zero regardless of a position of the optical pickup, when power is applied to the optical disc drive;
    confirming a current position of the optical pickup;
    calculating a step counter value of a home position; and
    moving the optical pickup to the home position through an access operation.

11.   The method of claim 10, wherein the calculating includes calculating a number of tracks from the current position of the optical pickup to the home position and converting the number of tracks into a step counter value to obtain a step counter value of the home position.

12.   The method of claim 10, wherein the confirming includes driving a servomechanism at the current position of the optical pickup and then reading a sub-code value of the optical disc to confirm the current position of the optical pickup.

14.   The method of claim 10, wherein the step counter value of the home position is an integer varying depending on the position of the optical pickup when power is applied.

15.   An optical disc drive comprising:

an optical pickup having a stepping motor;

a resettable variable step counter which counts steps of the stepping motor of the optical pickup;

a servomechanism which drives the optical pickup at a current position to enable reading of sub code data to confirm the current position of the optical pickup;

a calculator which calculates a number of tracks from a current position of the optical pickup to a home position and converts the number of tracks into a step counter value of the home position,

wherein the variable step counter is reset when the optical disc drive is energized.

16.   The optical disc drive of claim 15, wherein the step counter value of the home position is an integer varying depending on the position of the optical pickup when power is applied.

17.   A method of eliminating home-in noise in an optical disc drive using a variable step counter by which a slight step-out (deviation) is not checked during a long-term access test of an optical disc drive, comprising:

periodically calculating a step counter value of a home position to ensure the stability of an access operation; and

moving the optical pickup to the home position after the optical disc drive is driven and a tray is opened.

18.   The method of claim 17, wherein the period of the calculating is a threshold number of accessing operations.